October 2004

Reference Number: 2005-20-004

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DEPARTMENT OF THE TREASURY WASHINGTON, D.C. 20220

October 28, 2004

MEMORANDUM FOR CHIEF INFORMATION OFFICER

Gordon C. Willown =

FROM: Gordon C. Milbourn III

Acting Deputy Inspector General for Audit

SUBJECT: Final Audit Report - The Business Systems Development

Organization Can Improve Management of Information Services

Requests (Audit # 200420010)

This report presents the results of our review of the Business Systems Development (BSD) organization's efforts to effectively manage its information services requests. This review is part of our Fiscal Year (FY) 2004 audit plan for reviews to assess the adequacy of the Internal Revenue Service's (IRS) information technology.

In summary, the BSD organization is one of the largest functions in the Modernization and Information Technology Services (MITS) organization in terms of both size and resources. For FY 2004, the BSD organization had a budget of \$336 million and 1,916 full-time equivalent (FTE)¹ positions. It receives information services requests from the IRS' business operating divisions and functional organizations through the Request for Information Services (RIS) process, which provides a common framework to document, control, monitor, and track requirement changes to IRS computer systems and requests for information technology support.

Managing and coordinating computer programming changes is a challenge in an organization that processes about 1,500 information services requests annually. The MITS organization is addressing this challenge and is making progress in improving the information services request process. For example, it has used its Resources Allocation and Measurement (RAM) function as a control to ensure the RISs considered

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¹ A measure of labor hours in which 1 FTE is equal to 8 hours multiplied by the number of compensable days in a particular fiscal year. For FY 2004, 1 FTE was equal to 2,096 staff hours.

the business practices and technology associated with the Enterprise Architecture.² Also, it sponsored a study to identify actions to improve the RIS process.

Our analysis of the RIS process determined the RISs are assigned to the BSD organization's subordinate offices based on their respective responsibilities, prioritized by RIS category,³ usually worked on a first-in first-out basis, and generally timely completed. The MITS organization Enterprise Governance (MEG)⁴ Investment Management (MIM) subcommittee was established to ensure information technology investments comply with IRS policies and procedures and align with enterprise, business operating division, and functional organization strategic goals.

The BSD organization does not have a formal profile of its staff's current skills and abilities to allow it to align its workforce with the workload. The BSD organization's management stated that when specific skills are needed to complete a RIS and the needed skills are not available within the assigned group, the skills are either transferred in from another group or the work is accomplished by contracting the work outside the IRS. The BSD organization's management further stated the absence of adequate time to anticipate RIS receipts may not allow them to identify, train, or assign staff with the skills needed to deliver the RISs. To date, BSD organization management has addressed this shortfall by relying on the exceptional skills and abilities of the workforce and overtime to meet workload demands.

The absence of a process to identify and catalog the BSD organization staff's skills, experience, and work assignments makes it difficult for the BSD organization's management to quantify the capability of its workforce to meet the workload demand. In September 2003, we issued a report⁵ about the MITS organization's human capital management. The Chief Information Officer (CIO) agreed with our report and directed the MITS organization's Senior Leadership Team to develop a process for identifying and articulating human capital demand. Completion of this effort was scheduled for September 30, 2004.

The BSD organization developed a database called the Taxonomy⁶ Repository to allow users to identify the BSD organization work projects, subprograms and programs, and the resources associated with them. Neither a business case nor a cost-benefit analysis was prepared as part of the project development. The BSD organization's management advised that the subordinate offices have not consistently updated the Taxonomy Repository. As a result, the database information is not always reliable.

² The Enterprise Architecture defines the IRS target business practices, the systems that enable the target business practices, and the technology that will support it, and serves as a guide to the IRS' Modernization Program and investment decisions.

³ The RIS categories are: Legislative, Sustaining Operations, PRIME Modernization, Enhancements, and Commissioner's Mandate.

⁴ The MEG is the highest level recommending and decision-making body to oversee and enhance enterprise management of information systems and technology.

⁵ The Modernization, Information Technology and Security Services Organization Needs to Take Further Action to Complete Its Human Capital Strategy (Reference Number 2003-20-209, dated September 2003).

⁶ Taxonomy is the science or technique of classification dealing with identification and naming.

Through FY 2004, the IRS will have spent \$2,275,073 on the Taxonomy Repository. Projected costs to continue operating the Repository are about \$759,800 over 5 years.

To further the improvements in the RIS process, we recommended the CIO incorporate the MIM subcommittee's technology investment portfolio decisions into the RIS prioritization process. The BSD organization should work with the RAM function to incorporate these investment decisions into the RIS prioritization process, along with the process to screen the RISs for Enterprise Architecture compliance. Further, the CIO should ensure the BSD organization works with the Director, Management Services, in completing the corrective actions to our prior report to develop a process to identify and articulate human capital demand. Also, the CIO should evaluate the Taxonomy Repository to determine whether it should continue to be funded and maintained by preparing a business case and cost-benefit analysis.

Management's Response: The CIO generally agreed with our recommendations. The CIO agreed that the RIS prioritization process should be governed by the Capital Planning and Investment Control (CPIC)⁷ portfolio priorities. The BSD organization will participate in developing a process to gather and articulate its human capital demand. It will also complete a skills gap analysis, develop a recruitment plan, and identify appropriate retention incentives. The CIO also agreed to evaluate continuance of the Taxonomy Repository through a cost-benefit analysis.

Office of Audit Comment: While IRS management did not specify using the RAM function to ensure RIS compliance with the CPIC process, the corrective actions they plan to take will address the recommendation. The CIO directed the MITS organization's Senior Leadership Team to develop a process for gathering and articulating human capital demand in response to our September 2003 report about the MITS organization's human capital management. The corrective action to the previously cited report was not completed, and the CIO's corrective action to this report's recommendation is essentially the same as the previously planned action. Lastly, the CIO presented a lower estimated cost to manage the Taxonomy Repository than the costs we reported. Our cost estimates were based on documentation provided by the BSD organization during our field work activities. The BSD organization did not provide us any supporting documentation for the updated cost information it presented in the response to the draft report. As a result, we retained our original outcome measure estimates presented in Appendix IV. Management's complete response to the draft report is included as Appendix VI.

Copies of this report are also being sent to the IRS managers affected by the report recommendations. Please contact me at (202) 622-6510 if you have questions or Margaret E. Begg, Assistant Inspector General for Audit (Information Systems Programs), at (202) 622-8510.

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⁷ The CPIC process manages a central portfolio of information technology investments across the IRS.

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Background

One of the Internal Revenue Service's (IRS) major strategies contained in the IRS Strategic Plan for Fiscal Years (FY) 2000-2005 is to provide high-quality, efficient, and responsive information services. This strategy plans continuing support for current operations with emphasis on increased quality and reduced costs of routine operations and continued support to the Business Systems Modernization program. The Business Systems Development (BSD) organization is responsible for defining, building, testing, delivering, and maintaining the IRS' information systems. The BSD organization's work supports the Modernization and Information Technology Services (MITS) organization production environment in achieving the business vision and objectives of the IRS.

The BSD organization is one of the largest functions in the MITS organization in terms of both size and resources. For FY 2004, the BSD organization had a budget of \$336 million and 1,916 full-time equivalent (FTE)¹ positions. At the time of our review, the BSD organization accomplished its work with seven subordinate offices:

- Product Assurance Division.
- Program Management and Release Readiness Office.
- Compliance Systems Division.
- Corporate Data and Systems Management Division.
- Internal Management Systems Division.
- Customer Applications Development Division (CADD).
- Filing Systems Division (FSD).

The BSD organization receives information services requests from the IRS' business operating divisions and functional organizations. It also receives information services requests from the Division Information Officers who manage demand and coordinate service between the MITS organization and the IRS' business operating divisions and functional organizations. These information

¹ A measure of labor hours in which 1 FTE is equal to 8 hours multiplied by the number of compensable days in a particular fiscal year. For FY 2004, 1 FTE was equal to 2,096 staff hours.

services requests are received through the Request for Information Services (RIS) process, which provides a common framework to document, control, monitor, and track requirement changes to IRS computer systems and requests for information technology support. A RIS is a formal memorandum requesting BSD organization support for changes to current or planned programming, corporate hardware, commercial off-the-shelf software applications, system testing, and other MITS organization activities used in processing tax information. The RIS Tracking and Reporting System is a database and repository that maintains and tracks RIS documents and RIS responses.²

This review was performed at the BSD organization's offices in New Carrollton, Maryland, during the period March through July 2004. The audit was conducted in accordance with *Government Auditing Standards*. Detailed information on our audit objective, scope, and methodology is presented in Appendix I. Major contributors to the report are listed in Appendix II.

Several Measures Have Been Initiated to Improve the Request for Information Services Process Managing and coordinating computer programming changes is a challenge in an organization that processes about 1,500 information services requests annually. The MITS organization is addressing this challenge and is making progress in improving the information services request process. For example, the MITS organization has used its Resources Allocation and Measurement (RAM) function as a control to ensure the RISs considered the business practices and technology associated with the Enterprise Architecture.³ The MITS organization has supplemented this control by implementing standard operating procedures to refer the RISs to the Business Systems Modernization Office (BSMO) when they do not appear to comply with the Enterprise Architecture. The BSMO's Systems Engineering and Integration office

² The RIS response is a completed and signed memorandum documenting the MITS organization's commitment to the work requested.

³ The Enterprise Architecture defines the IRS target business practices, the systems that enable the target business practices, and the technology that will support it, and serves as a guide to the IRS' Modernization Program and investment decisions.

performs and documents this review. The MITS organization also sponsored a study to identify actions to improve the RIS process.

The BSD organization has taken the following steps to improve the effectiveness and efficiency of the RIS process:

- Implemented the online RIS submission and RIS response process that uses the IRS' Intranet to control and report RIS activity.
- Established a policy to only accept information services requests that are submitted through the online RIS submission process.
- Generated and distributed management information reports for BSD organization managers to monitor RIS responses and their completion.
- Scheduled regular meetings among the BSD organization subordinate offices to discuss the work status.

Although the BSD organization has taken significant steps to improve its management of information services requests, managing the RIS inventory continues to be a challenge.

The BSD organization established cut-off dates for RIS submissions to enable timely assignment and management of the inventory of RIS receipts. Large portions of the receipts are required for the IRS' tax return filing season⁴ processing. The BSD organization asks for RIS submissions by the end of February for implementation during the following tax return filing season. These cut-off dates allow the BSD organization to complete the RISs to

The BSD organization has timely completed the RISs selected for processing

meet tax return filing season processing requirements.

We analyzed the volume of all RISs received in the BSD organization from March 1, 2002, through February 29, 2004, to identify inventory trends. Table 1 presents the inventory of RIS receipts in the BSD

The Requests for Information Services Selection and Prioritization Process Can Be Improved

⁴ The period from January through mid-April when most individual income tax returns are filed.

organization and a further analysis of two of its subordinate offices: the CADD and the FSD.⁵

Table 1: Requests for Information Services Received From March 1, 2002, Through February 29, 2004				
RIS Submission Period	CADD	FSD	All Divisions	
March 1, 2002, through February 28, 2003	127	335	1,533	
March 1, 2003, through February 29, 2004	183	394	1,478	
Total	310	729	3,011	

Source: Treasury Inspector General for Tax Administration (TIGTA) analysis of the BSD organization's RIS receipts.

The BSD organization delivered the requested information services it selected to its customers on a timely basis.

Status	CADD	FSD	All Divisions
March 1, 20	02, through Feb	oruary 28, 2003	
Late or			
Overdue	11 (12%)	0	44 (4%)
Timely	78 (88%)	275 (100%)	1,192 (96%)
Total	89	275	1,236
March 1, 20	03, through Feb	oruary 29, 2004	
Late or			
Overdue	4 (5%)	1 (.5%)	20 (3%)
Timely	78 (95%)	203 (99.5%)	618 (97%)
Total	82	204	638

Source: TIGTA analysis of the BSD organization's RIS receipts.

⁵ Based on our preliminary analysis to determine the number of receipts assigned to the BSD subordinate offices and our discussion with the Director, BSD, we chose to perform a detailed analysis on the RIS receipts assigned to the CADD and FSD.

The IRS' Internal Revenue Manual (IRM) contains specific categories for the BSD organization to use in prioritizing RIS receipts to assure that the most important RISs are selected and assigned for completion. At the time of our review, the categories and their order of assignment priority for the RIS receipts were:

- 1. *Legislative* The RISs resulting from Congressional legislation.
- 2. Sustaining Operations The RISs to change the MITS organization current production environment that, unless implemented, will shut down critical information system operations or will require procedures causing significant resource use to continue IRS operations.
- 3. *PRIME*⁶ *Modernization* The RISs generated by the PRIME contractor's Project Office requesting MITS organization support and services for the development and implementation of modernized IRS computer systems.
- 4. Enhancements The RISs to enhance the current production environment; develop new systems or functionality; implement Congressional, Government Accountability Office (GAO), or TIGTA suggested changes that are not legislative; or make changes mandated by the Commissioner or the Department of the Treasury due to political direction and management decisions.
- 5. *Commissioner's Mandate* The RISs requested by the Commissioner.

The BSD organization is in the process of revising these categories. The RISs in the *Commissioner's Mandate* category will be combined with the *Legislative* RISs. Another category will be added called *Rust Replacement*. The RISs in this category involve replacing outdated technology to meet current systemic requirements.

⁶ The PRIME contractor is the Computer Sciences Corporation, which heads an alliance of leading technology companies brought together to assist with the IRS' efforts to modernize its computer systems and related information technology.

Table 3 presents an analysis of RIS receipts by category.

Table 3: Requests for Information Services Received by RIS Category						
Category*	L	S	P	E	С	Total
March 1, 200	02, through	h Februai	ry 28, 20	03	·I	1
CADD	5	68	1	43	10	127
FSD	48	184	9	82	12	335
All Divisions	181	806	67	391	88	1,533
March 1, 200	03, through	h Februai	ry 29, 20	04	•	
CADD	8	105	0	70	0	183
FSD	54	253	1	86	0	394
All Divisions	136	895	24	422	1	1,478
*RIS Categories: Legislative (L), Sustaining Operations (S), PRIME Modernization (P), Enhancements (E), and Commissioner's Mandate (C).						

Source: TIGTA analysis of the BSD organization's RIS receipts.

The MITS organization's RIS study has made recommendations to improve the RIS selection and assignment prioritization processes

The MITS organization sponsored a task force study that included considering possible improvements to the RIS process. The task force's draft recommendations focus on configuration management⁷ and related change control processes. The MITS organization adopted the task force recommendations that revise the RIS categories to assure consistency between the IRM, the MITS change request and RIS processes, the MITS budget, and the Capital Planning and Investment Control (CPIC)⁸ portfolio.

⁷ Configuration management is the process of identifying and managing the content of project information libraries.

⁸ The CPIC process manages a central portfolio of information technology investments across the IRS.

However, recommendations that have not yet been approved include:

- Requiring the business operating divisions and functional organizations to provide the MITS organization with a draft of their business needs 3 years in advance.
- Establishing one process for all MITS organization change requests (including the RISs).
- Centralizing the submission of all change requests to one area within the MITS organization.
- Restructuring the Configuration Control Board⁹ within the MITS organization to enhance management oversight of information services requests and the assessment of the impact of information services requests on the Enterprise Architecture.

The task force is awaiting concurrence or feedback from the MITS organization executive management to finalize the study's recommendations.

The MITS organization's revised governance structure provides oversight of operations to ensure technology investments align with the IRS policies and strategic goals

The MITS organization Enterprise Governance (MEG)¹⁰ Investment Management (MIM) subcommittee was established to ensure that information technology investments comply with IRS policies and procedures and align with enterprise, business operating division, and functional organization strategic goals. The MIM subcommittee is charged with providing general information technology investment portfolio oversight including investment prioritization recommendations, operational

⁹ The Configuration Control Board is a group of technical and administrative experts with the assigned authority and responsibility to make decisions on the configuration of a product, application group, hardware, software, and documentation that satisfies an end-use function.

¹⁰ The MEG is the highest level recommending and decision-making body to oversee and enhance enterprise management of information systems and technology.

analysis reviews and reports, and recommendations for adjustments to the IRS portfolio. In its portfolio oversight role, the MIM subcommittee coordinates with the MEG, Executive Steering Committees, MITS organization Change Control Board, other governance bodies, organizational units, and stakeholders. While the MIM subcommittee was established to ensure the work is aligned with the business operating division and functional organization strategic goals, its charter does not include ensuring that information services requests align with the technology investment portfolio decisions. To address this issue, the MIM subcommittee charter is being revised to align the requests with the technology investment portfolio decisions.

The BSD organization works with the IRS business operating divisions and functional organizations to develop the content of the RIS memorandum. RIS receipts that are selected for development and implementation are assigned to the BSD organization's subordinate offices based on their respective responsibilities. After the RIS is forwarded to the subordinate office, assignments are prioritized by RIS category and then generally worked on a first-in first-out basis. The BSD organization generally considers RISs in the *Legislative* and *Sustaining Operations* categories as mandatory assignments. The remaining categories are considered more discretionary in assignment priority. The BSD organization also considers the date RIS implementation is needed in prioritizing assignments.

Including the MIM subcommittee's technology investment portfolio decisions in the prioritization process could further improve assignment prioritization of the RISs. This action would primarily affect the RISs considered discretionary, which made up 30 percent of the RIS receipts from March 2003 through February 2004. The MIM subcommittee's investment portfolio decisions will require the business operating divisions and functional organizations to identify and communicate future resource and technology requirements (human resources, hardware, and software) earlier than they do now. This planning will be necessary to incorporate technology investments into future funding requests.

Recommendation

The Chief Information Officer (CIO) should incorporate
the MIM subcommittee's technology investment
portfolio decisions into the RIS prioritization process.
To accomplish this, the CIO should direct the BSD
organization to work with the RAM function to
supplement the existing Enterprise Architecture review
process with a review to assure the MIM
subcommittee's investment decisions are considered in
the RIS prioritization process.

Management's Response: The CIO agreed that the RIS prioritization process should be governed by the CPIC process priorities. The MITS organization will develop an action plan, complete the design and implementation of the CPIC process, develop and implement a communication strategy for sharing CPIC decisions, and develop and implement a strategy for verifying RIS compliance with the CPIC process.

Office of Audit Comment: The CIO's corrective action relies on the MEG and the MIM subcommittee to ensure RISs received for new initiatives or major changes to current initiatives will not be accepted and funded unless they have been approved through the CPIC process. While IRS management did not specify using the RAM function to ensure RIS compliance with the CPIC process, the corrective actions they plan to take will address the recommendation.

A Workforce Profile Would Enhance Workload Planning and Management In FY 2003, the BSD organization developed the Budget Book database as an internal planning tool to track anticipated labor and nonlabor expenditures, including the number of FTEs for each project. Each BSD organization subordinate office entered its budget information for all projects in the Budget Book. Although the costs for all RISs associated with a project are included in the Budget Book under the associated project, individual RIS resource expenditures are not included in the Budget Book, which prevents the identification and analysis of RIS costs.

The BSD organization uses the Budget Book and prior year budget history data (FTE and nonlabor dollars) to estimate future workforce needs of information services requests and

annual maintenance activities. It also uses prior year work history to assess the knowledge and skills needed for future work. However, it does not have a formal profile of its staff's current skills and abilities to allow it to align its workforce with the workload.

To obtain an inventory of the staff's skills and abilities, the MITS organization asked its staff to complete a self-assessment of their competencies (knowledge, skills, and abilities) and experience for the MITS organization Competency and Experience Inventory database. However, all BSD organization employees did not participate in the survey. Also, because the survey was a self-assessment, the skill levels designated by the employees may not always agree with BSD organization management's assessment. BSD organization management does not use the database as a tool to assess workforce capabilities or rely on the information in the database as a skills inventory for its staff.

In September 2003, we issued a report about the MITS organization's human capital management. 12 Overall, the report presented that the MITS organization's Management Services office made significant progress in developing its human capital strategy. While these efforts were significant and produced useful analyses for decision making, the strategy needed further development to provide a roadmap for the MITS organization to reach its goal of having the right people, at the right time, to meet its mission. The report also presented that additional planning was needed by the MITS organization to identify human capital asset demands for the existing programs. The CIO agreed with our report and directed the MITS organization's Senior Leadership Team to develop a process for identifying and articulating human capital demand. Completion of this effort was scheduled for September 30, 2004.

¹¹ The MITS organization Competency and Experience Inventory is a central repository of the competencies and experience of the MITS organization workforce.

¹² The Modernization, Information Technology and Security Services Organization Needs to Take Further Action to Complete Its Human Capital Strategy (Reference Number 2003-20-209, dated September 2003).

The President's Management Agenda includes five Government-wide initiatives that provide a strategy to improve the management and performance of the Federal Government. The first of these initiatives is *Strategic Management of Human Capital*. The President's human capital initiative has launched a Government-wide effort to focus Federal agencies on designing workforce planning and forecasting models to ensure the Federal Government has the right people, at the right time, to meet its mission.

Office of Management and Budget Circular A-123, Management Accountability and Control, requires management controls to be established that include organization, policies, and procedures to help programs achieve intended results and ensure resources are used consistently with the agency's mission. Further, level two of the Software Engineering Institute's People Capability Maturity Model (People CMM)¹³ provides that a formal process must be established to match committed work to available resources. The type of skills and experience needed to perform the proposed work are identified and matched to the required tasks. Additional detail about the People CMM as a foundation for managing human capital in an organization is presented in Appendix V. This appendix also includes our limited observations about the BSD organization's workforce management activities and accomplishments as they relate to the People CMM maturity level¹⁴ characteristics.

BSD organization management stated it did not have a profile of the skills of the individual employees, nor did they have the staff to track BSD organization skills used to complete the work assignments. However, BSD organization management stated it knows the skills and capabilities of its staff to meet workload demands. BSD organization management further stated they are prohibited from maintaining a formal profile of individual employee

¹³ The People CMM consists of five maturity levels that lay successive foundations for continuously improving talent, developing an effective workforce, and successfully managing the human capital of an organization.

¹⁴ A maturity level represents a level of workforce capability in an organization.

skills because of an agreement between the National Treasury Employees Union and the IRS.

Having staff with the required skills to meet workload demands is not always possible. BSD organization management stated when specific skills are needed to complete a RIS and the needed skills are not available within the assigned group, the skill is either transferred in from another group, or the work is accomplished by contracting the work outside the IRS. BSD organization management further stated the absence of adequate time to anticipate RIS receipts may not allow them to identify, train, or assign staff with the skills needed to deliver the RISs. To date, BSD organization management has addressed this shortfall by relying on the exceptional skills and abilities of the workforce and overtime to meet workload demands.

The absence of a process to identify and catalog the BSD organization's staff skills, experience, and work assignments makes it difficult for the BSD organization management to quantify the capability of its workforce to meet the workload demand. Also, an inadequate profile of its staff does not allow the BSD organization to develop succession plans to fill skill needs resulting from staff attrition due to promotions, reassignments, retirements, and departures. This is of particular interest because 40 percent of the MITS organization's workforce is approaching retirement age. Without the ability to plan replacement of lost skills and knowledge, the BSD organization will not have a high degree of assurance that its staff will have the expertise to perform critical computer programming efficiently and effectively. Aligning the information services requests with the technology investment portfolio will help allow the BSD organization to anticipate the RIS receipts with adequate lead time to meet the workload demand. This lead time will also help the BSD organization identify the type and amount of skills needed to deliver the RISs.

Recommendation

2. The CIO should ensure the BSD organization works with the MITS organization's Director, Management Services, in completing the corrective actions to our

prior report. This responsibility involves developing a process to identify and articulate human capital demand. In developing this process, consideration should be given to using the People CMM as a model in managing workforce capabilities. The BSD organization could also use the People CMM as guidance in aligning its workforce and workload with its subordinate offices.

Management's Response: The CIO agreed with our recommendation. The BSD organization will participate in developing a process to gather and articulate its human capital demand. Upon completion of the process, the BSD organization will use the model developed as a guide to provide human capital demand data to the Director, Management Services. It will also complete a skills gap analysis, develop a recruitment plan, and identify appropriate retention incentives.

Office of Audit Comment: As previously stated, the CIO directed the MITS organization's Senior Leadership Team to develop a process for gathering and articulating human capital demand in response to our September 2003 report about the MITS organization's human capital management. Completion of this effort was scheduled for September 30, 2004. The corrective action to the previously cited report was not completed, and the CIO's corrective action to this report's recommendation is essentially the same as the previously planned action.

The Data in the Taxonomy Repository Are Not Completely Reliable In May 2000, we issued a report that recommended developing written criteria for prioritizing the RISs.¹⁵ Management's response to this report stated the BSD organization would use taxonomy¹⁶ to classify requirements with measurable criteria to prioritize critical versus noncritical changes.

¹⁵ The Internal Revenue Service's Process for Controlling Filing Season Computer Programming Changes Does Not Ensure Critical Changes Are Effectively Implemented (Reference Number 2000-40-069, dated May 2000).

¹⁶ Taxonomy is the science or technique of classification dealing with identification and naming.

The Taxonomy Project¹⁷ developed a database to allow users to identify the BSD organization work projects, subprograms and programs, and the resources associated with them. The Taxonomy Project database resides on the IRS Intranet to make it readily available for its users. As such, it acts as an online, real-time tool to store, access, and report project information. This tool is referred to as the Taxonomy Repository.

The Taxonomy Repository was developed using an evolving model based on user feedback. Neither a business case nor a cost-benefit analysis was prepared as part of the project development. The Repository was developed and maintained by contractors until September 2003. Subsequently, because the BSD organization budget was reduced, the BSD organization assumed Taxonomy Repository maintenance responsibilities using IRS employees. The respective BSD organization subordinate offices are responsible for updating their information in the repository.

BSD organization management advised that the subordinate offices have not consistently updated the Taxonomy Repository. As a result, the database information is not always reliable for use in managing information services requests. Also, some BSD organization managers stated they seldom use the Taxonomy Repository and the information it contains is available in other systems (e.g., Single Entry Time Reporting system¹⁸ and the Automated Financial System¹⁹).

The GAO's *Standards for Internal Control in the Federal Government* state that information should be recorded and communicated to management and others within the entity who need it and in a form and within a time period that enables them to carry out their responsibilities. Inconsistent updates to the Repository reduce the accuracy and reliability

¹⁷ The Taxonomy Project will define the standard naming conventions and the associated hierarchy for describing and documenting the work that the BSD organization performs.

¹⁸ The Single Entry Time Reporting system is the IRS system used to pay employees.

¹⁹ The Automated Financial System is a computer integrated accounting and budgeting system.

of its data for BSD organization management's use. Without adequate resources assigned to maintain the Repository, funds dedicated to its operations may be wasted. Through FY 2004, the IRS will have spent \$2,275,073 on the Taxonomy Repository. Projected costs (including labor, travel, and overtime) to continue operating the Repository are about \$759,800 over 5 years. Appendix IV presents detailed information on the measurable impact of these costs.

Recommendation

- 3. The CIO should evaluate the Taxonomy Repository to determine whether it should continue to be funded and maintained by preparing a business case and cost-benefit analysis. The determination should:
 - Assess the utilization of the Taxonomy Repository to determine whether it is needed or alternative sources of information are available.
 - Determine how to ensure the Taxonomy Repository includes all required information and how the information will be timely and consistently updated if the project is continued.
 - Determine how maintenance and further Taxonomy Repository development will be funded if the project is continued.

Management's Response: The CIO agreed to evaluate the Taxonomy Repository through a cost-benefit analysis to determine if it should be continued. Although BSD organization management agreed implementation of the recommendation will result in cost savings, it disagreed with our cost savings estimate as shown in Appendix IV. In its response, BSD organization management stated it only required 30 percent of an FTE to manage the Taxonomy Repository. Based on BSD organization management's estimate, it would have a 1-year cost savings of \$22,194 and a 5-year cost savings of \$110,970 for the FTEs and FTE benefits. (See Appendix VI for BSD organization management's cost savings computation.)

Office of Audit Comment: BSD organization management provided us documentation during the course of our field work showing it needed two FTEs to manage the Taxonomy Repository in FY 2004. We have not received documentation showing why the FTE use should be reduced to 30 percent. As a result, we have retained our original outcome measure estimate presented earlier and in Appendix IV.

Appendix I

Detailed Objective, Scope, and Methodology

The overall objective of this review was to evaluate the Business Systems Development (BSD) organization's efforts to effectively manage its information services requests. This review is the first in a series of reviews of the BSD organization and is part of our Fiscal Year 2004 audit plan for reviews to assess the adequacy of the Internal Revenue Service's information technology. To accomplish this objective, we:

- I. Evaluated the BSD organization Filing Systems and Customer Applications Development Divisions' efforts to effectively manage its information services requests.
 - A. Interviewed BSD organization management from the selected divisions to determine how they selected and prioritized information services requests (i.e., Request for Information Services [RIS], maintenance requests [hardware maintenance], and projects initiated by the Business Systems Planning/Division Information Officer Council).
 - B. Analyzed information services requests to determine whether the divisions timely and adequately managed resources to meet information services requests requirements. We received RIS Tracking and Reporting System (RTRS) data about RIS responses¹ and completion activity from the BSD organization. The analysis included RIS receipts from March 1, 2002, through February 29, 2004. Based on our preliminary analysis to determine the number of receipts assigned to the BSD organization subordinate offices and our discussion with the Director, BSD, we chose to perform a detailed analysis on the RIS receipts assigned to the Filing Systems and Customer Applications Development Divisions.
- II. Evaluated the findings and recommendations in the RIS Task Force Study and the BSD organization's Configuration Management Survey on Change Control to identify additional opportunities to improve the process for selecting and prioritizing information services requests.
 - A. Interviewed BSD organization management and analysts to determine whether and how the current and proposed information systems architecture was considered during the RIS assessment process.
 - B. Interviewed BSD organization management and analysts to determine how they ensure the work they have chosen supports the Modernization and Information Technology Services organization's strategic and program plans.

¹ The RIS response is a completed and signed memorandum documenting the MITS organization's commitment to the work requested.

- C. Assessed the adequacy of the BSD organization's actions to address and implement the recommendations from the RIS Task Force Study and the BSD organization's Configuration Management Survey findings.
- D. Evaluated BSD organization management's ability to manage and align its workforce to meet human capital demand by relating the BSD organization's policies to the Software Engineering Institute's People Capability Maturity Model (People CMM).²
- III. Assessed the BSD organization's controls over using the RTRS for reviewing and responding to the RISs.
 - A. Determined what controls were in place to ensure all RISs were controlled, addressed, and tracked through the RTRS.
 - B. Analyzed the RISs to determine the efficiencies gained or available using the web-based RIS request system.

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² The People CMM consists of five maturity levels that lay successive foundations for continuously improving talent, developing an effective workforce, and successfully managing the human capital of an organization.

Appendix II

Major Contributors to This Report

Margaret E. Begg, Assistant Inspector General for Audit (Information Systems Programs)
Gary Hinkle, Director
Edward A. Neuwirth, Audit Manager
Tina Wong, Lead Auditor
Paul Mitchell, Senior Auditor
Linda Screws, Auditor

Appendix III

Report Distribution List

Commissioner C

Office of the Commissioner – Attn: Chief of Staff C

Deputy Commissioner for Operations Support OS

Associate Chief Information Officer, Information Technology Services OS:CIO:I

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Office of Management Controls OS:CFO:AR:M

Audit Liaisons:

Director, Business Systems Development OS:CIO:I:B Manager, Program Oversight Office OS:CIO:SM:PO

Appendix IV

Outcome Measures

This appendix presents detailed information on the measurable impact that our recommended corrective actions will have on tax administration. These benefits will be incorporated into our Semiannual Report to the Congress.

Type and Value of Outcome Measure:

Inefficient Use of Resources – Potential; \$3,014,873 (see page 13).

Methodology Used to Measure the Reported Benefit:

We reviewed the use of the Taxonomy¹ Repository as a resource to control the Business Systems Development's (BSD) organization's work. We determined that the Taxonomy Repository is not used to control BSD organization work but is an inventory of projects. The BSD organization's management stated that the Repository's data are not always complete and accurate and the data are available from other sources. We recommended the Chief Information Officer (CIO) evaluate the Taxonomy Repository to determine whether it should continue to be funded and maintained by preparing a business case and cost-benefit analysis. We determined the cost of the Taxonomy Repository between Fiscal Years (FY) 2000 and 2004 was \$2,275,073. Additional labor costs to maintain the Taxonomy Repository from FY 2005 to 2009 are estimated at \$739,800.

Description	Amount
FY 2000 – 2003 Taxonomy Task Order	\$2,123,113
FY 2004 estimated costs for two full-time equivalents (FTE) ² (2 FTEs @ \$59,184) ³	\$118,368
FY 2004 estimated costs for FTE benefits (2 FTEs @ \$59,184 x 25%)	\$29,592
FY 2004 estimated related travel and overtime costs	\$4,000
FY 2000 through 2004 Total	\$2,275,073

¹ Taxonomy is the science or technique of classification dealing with identification and naming.

² A measure of labor hours in which 1 FTE is equal to 8 hours multiplied by the number of compensable days in a particular fiscal year. For FY 2004, 1 FTE was equal to 2,096 staff hours.

³ We calculated the FTE cost using the 2210-job series (Information Technology Specialist) at Grade 11 Step 5.

Estimated FTE Costs for FY 2005 through 2009	Amount
Estimated 1 year costs (\$118,368 + \$29,592)	\$147,960
Estimated 5 year FTE savings (\$147,960 x 5)	\$739,800

Type and Value of Outcome Measure:

• Cost Savings, Funds Put to Better Use – Potential; \$20,000 (see page 13).

Methodology Used to Measure the Reported Benefit:

We reviewed the use of the Taxonomy Repository as a resource to control the BSD organization's work. We determined the Taxonomy Repository is not used to control BSD organization's work but is an inventory of projects. The BSD organization's management stated the Repository's data are not always complete and accurate, and the data are available from other sources. We recommended the CIO evaluate the Taxonomy Repository to determine whether it should continue to be funded and maintained by preparing a business case and cost-benefit analysis. We determined that the BSD organization could realize a potential cost savings of \$20,000 over 5 years by discontinuing the Taxonomy Repository.

Estimated Cost Savings	Amount
FY 2004 Estimated related travel and overtime costs	\$4,000
Estimated 5 year savings (\$4,000 x 5)	\$20,000

Appendix V

Overview of the Software Engineering Institute's People Capability Maturity Model

The Software Engineering Institute's People Capability Maturity Model (People CMM) consists of five maturity levels¹ that lay successive foundations for managing the human capital of an organization. Achieving each layer of the maturity results in an overall increase in the workforce capability of the organization. This can be defined as the level of knowledge, skills, and process abilities available for performing an organization's current and future business activities. Each maturity level is composed of several process areas. Each process area contains a set of goals that, when satisfied, establish that process area's ability to affect workforce capability. Each process area organizes a set of interrelated practices² in a critical area of workforce management, such as staffing, compensation, or workgroup development. The practices, when collectively addressed, accomplish the goals of the process area. The practices state the policies, procedures, and activities for the process area. The following describes some of the attributes of the five maturity levels:

- Level one Workforce practices are developed as needed and are inconsistent. There are no policies for managing the workforce.
- Level two Managers take responsibility for issues such as staffing, coordinating commitments, providing resources, and developing skills. Management establishes policies and procedures to document the unit-staffing³ activities. A formal process is established by which committed work is matched to unit resources.
- Level three The organization ties the capability of the workforce to strategic business
 objectives and develops strategic workforce plans. Through workforce planning, the
 organization identifies the workforce it needs for its current and future business activities;
 plans the actions to be taken to ensure the required workforce is available when needed;
 defines the competency-based processes that an individual in each workforce competency
 would be expected to perform in accomplishing their committed work; and establishes an
 organizational framework for developing the knowledge, skills, and process abilities of its
 workforce.
- Level four The organization is able to predict its capability for performing work because it can quantify the capability of its workforce. Workforce competencies are integrated to improve the efficiency of interdependent work and procedures are developed for guiding the organization's competency integration activities. Measurements are used to determine the status, performance, and effectiveness of competency integration activities. The organization

³ A unit is a single, well-defined organizational component within an organization.

¹ A maturity level represents a level of workforce capability in an organization.

² Practice refers to standard, defined workforce management processes.

has a documented policy for conducting empowered workgroup activities, which are included in the strategic workforce plan. The knowledge, experience, and artifacts resulting from performing competency-based processes are developed into competency-based assets that can be reused by other members of their competency community. The organization determines its capability and quantitative trends in each of its workforce competencies relative to objectives established in its strategic workforce plan.

Level five - The entire organization is focused on continual improvement with change
management as an ordinary business process to be performed in an orderly way on a regular
basis. Lessons learned are documented. Practices within this process allow management to
integrate the entire enterprise and use workforce activities strategically to achieve
organizational business objectives.

Although skipping entire maturity levels will eventually hamper an improvement program, the People CMM does not prohibit an organization from implementing practices or activities from higher maturity levels that can improve its performance.

The table on the next page presents our limited observations about some of the Business Systems Development's (BSD) organization management practices and how they relate to the People CMM.

Comparison of the Business Systems Development's Activities to the People Capability Maturity Model

People CMM Level	People CMM Practice	BSD Organization Activity
1	Work is chronically over committed with results depending on the skills of exceptional individuals and on excessive overtime.	Management relies on the heroic efforts of their workforce and overtime to complete work timely.
1	Management often refers to the staff as their most important asset.	The BSD organization is able to complete its work because of the exceptional skills and abilities of the present workforce.
1	The organization has not established policies for managing the workforce.	Management stated they are prohibited from gathering labor information on employees. The BSD organization does not use the Modernization and Information Technology Services (MITS) organization Competencies, Skills, and Experience Inventory to assess workforce capabilities.
2	Managers take responsibility for developing the skills of their staff.	Management knows the capabilities of their staff and ensures training is provided.
2	Management establishes policies and procedures to document unit-staffing activities.	The BSD organization controls, addresses, and tracks all Requests for Information Services (RIS) through the RIS Tracking and Reporting System.
2	Management takes responsibility for making compensation decisions to its staff.	The BSD organization recognizes employees with awards and incentives.
3	The organization defines the competency-based processes that an individual would be expected to perform.	The MITS organization developed the Competencies, Skills, and Experience Inventory to determine the baseline of competencies and experience at any point in time.
3	Subject matter experts are involved in analyzing the knowledge, skills, and process abilities required to perform their committed work.	Subject matter experts are participating in the identification of curricula for the Information Technology Specialists (2210 job series).
3	Training and development practices are focused on developing knowledge, skills, and process abilities.	The MITS organization develops and delivers training products and services, which the BSD organization uses.
3	The organization develops strategic workforce plans.	The MITS organization developed the strategic workforce plan with the BSD organization as a component.

Source: The Carnegie Mellon Software Engineering Institute.

Appendix VI

Management's Response to the Draft Report



DEPARTMENT OF THE TREASURY INTERNAL REVENUE SERVICE WASHINGTON, D.C. 20224

RECEIVED

October 7, 2004

MEMORANDUM FOR ACTING DEPUTY INSPECTOR GENERAL FOR AUDIT

FROM:

W. Todd Grams (N) 6 Chief Information Officer

SUBJECT:

Management Response for TIGTA Draft Report -

The Business Systems Development Organization Can Improve

Management of Information Services Requests (Audit #200420010; ECMS # 0408-648QU6BL)

Thank you for the opportunity to respond to the recommendations provided in the subject report. We have completed our review of the report and are pleased to see that you acknowledge the progress the Modernization and Information Technology Services (MITS) organization is making in improving the information services request process. We agree with your findings that we can make additional improvements in the management of Requests for Information Services (RIS).

The specifics of our response are contained in the attached corrective action plan. The plan emphasizes a new, more practical and realistic process for assessing and responding to the recommendations included in your audit report. Specifically, in our response to recommendation one, we are unable to commit to a thoughtful implementation date for the corrective action at this time. We are committing instead to develop a corrective action plan by February 1, 2005. This will allow us a reasonable amount of time fully assess the Issue and determine the appropriate actions that need to be taken. Once we have completed our plan, we will revise the February 1, 2005, date we are including in this response.

You requested our review of the measurable benefits identified in the report. While we concur that recommendation three will yield a benefit, our estimate is lower than the amount in the report. We are estimating benefits of \$4,439 for FY 2004 and almost \$135,000 over five years. The detailed description of these benefits appears under the corrective action for recommendation three.

This plan has been discussed with your auditing team. None of the material in the draft report warrants protection under the Freedom of Information Act or any other applicable law.

2

if you have questions, please call me at (202) 622-6800. Members of your staff may call Thomas Mulcahy, Manager, Program Oversight Office, at (202) 283-6063.

Attachment

MANAGEMENT RESPONSE TO DRAFT AUDIT REPORT
The Business Systems Development Organization Can Improve the
Management of Information Services Requests -- Audit #200420010

IDENTITY OF RECOMMENDATION #1

The Chief Information Officer (CIO) should incorporate the MIM's technology investment portfolio decisions into the RIS prioritization process by requiring the BSD to work with the RAM function to supplement the existing Enterprise Architecture review process with a review to assure the MIM's investment decisions are considered in the RIS prioritization process.

CORRECTIVE ACTION #1

We agree with your recommendation that the Requests for Information Services (RIS) prioritization process should be governed by the priorities established by the Capital Planning and Investment Control (CPIC) process. Currently, our Tier A governance process is well developed and will be formalized in the CPIC process. The Tier B process is maturing and much work is underway to develop the process for Tier C. IRS is developing an Information Technology Investment Model (ITIM) level 2 CPIC process to ensure enterprise-wide coordination and integration of information technology, systems planning and execution. The MITS Governance structure will be part of the CPIC. The structure consists of the MITS Enterprise Governance Committee (MEG), which is the highest level governing body in MITS and the MEG Investment Management (MIM) sub-committee which advises the MEG on investment, policy and governance issues. The MEG is a forum for senior MITS executives and executives from the business operating and functional divisions to oversee and enhance the management of the enterprise-wide portfolio of information technology initiatives. Investment decisions are recommended by the MIM and the MEG. CPIC criteria will be used by IRS executives to make corporate investment decisions. RISs received for new initiatives or major changes to current initiatives will not be accepted and funded unless they have been approved through the CPIC process. Due to the complexity of the issues and the number of organizations involved, we will develop an action plan by February 1, 2005.

IMPLEMENTATION DATE:				
COMPLETED:	PROPOSED:	February 1, 2005		
RESPONSIBLE OFFICIAL(S)				
Director, Business Systems Development OS:CIO:I:B				
Director, Infrastructure, Architec	ture and Enginee	ring OS:CIO:I:I		

MANAGEMENT RESPONSE TO DRAFT AUDIT REPORT

The Business Systems Development Organization Can Improve the Management of Information Services Requests -- Audit #200420010

CORRECTIVE ACTION MONITORING PLAN #1

- 1. Develop action plan.
- 2. Complete design and implementation of the CPIC process.
- 3. Develop and implement communication strategy for sharing CPIC decisions.
- Develop and implement strategy for verifying RIS compliance with the CPIC process.

IDENTITY OF RECOMMENDATION #2

The CIO should ensure that the BSD works with the MITS organization's Director, Management Services, in completing the corrective actions to [the] prior TIGTA report. This responsibility involves developing a process to gather and articulate human capital demand. In developing this process, consideration should be given to using the People CMM as a model in managing workforce capabilities. The BSD could also use the People CMM as guidance in aligning its workforce and workload with its subordinate offices.

CORRECTIVE ACTION #2

We agree with your recommendation that the Business Systems Development (BSD) organization be involved in completing the corrective actions from TIGTA Audit Report # 2003-20-209 (audit #200320030). The BSD organization reports directly to the Associate Chief Information Officer (ACIO) of Information Technology Services, one of the responsible partners for identifying and implementing the corrective action referenced. The ACIO will ensure the BSD organization's involvement in developing a process to gather and articulate its human capital demand. We cannot commit to using the People CMM model at this time; however, upon completion of this process, the BSD organization will use the model identified to provide the human capital demand data to the Director, Management Services. A skills gap analysis can then be conducted and strategic recruitment and retention plans can be developed.

IMPLEMENTATION DATE: COMPLETED: PROPOSED: January 1, 2006 RESPONSIBLE OFFICIAL(S) Director, Business Systems Development OS:CIO:I:B Director, Management Services OS:CIO:M

MANAGEMENT RESPONSE TO DRAFT AUDIT REPORT
The Business Systems Development Organization Can Improve the
Management of Information Services Requests -- Audit #200420010

CORRECTIVE ACTION MONITORING PLAN

- 1. Complete process to identify human capital demand.
- Compile human capital demand data and provide to Chief, Management Services.
- 3. Complete skills gap analysis.
- 4. Develop recruitment plan.
- 5. Identify appropriate retention incentives.

IDENTITY OF RECOMMENDATION #3

The CIO should evaluate the Taxonomy Repository to determine whether it should continue to be funded and maintained by preparing a business case and cost-benefit analysis. The determination should:

- Assess the utilization of the Taxonomy Repository to determine whether it is needed or alternative sources of information are available.
- Determine how to ensure the Taxonomy Repository includes all required information and how the information will be timely and consistently updated if the project is continued.
- Determine how maintenance and further Taxonomy Repository development will be funded if the project is continued.

CORRECTIVE ACTION #3

The Business Systems Development (BSD) organization will further evaluate the Taxonomy Repository through a cost-benefit analysis to determine if it should be continued. If unique modules exist and are needed, the BSD organization will determine if the modules can be incorporated into other systems or how to fund and maintain the Taxonomy Repository.

We concur that implementation of this recommendation will yield a benefit. However, our estimate is lower than the amount cited in the report. The following is our current FY 2004 and five-year projection and methodology for the cost of maintaining the TAXONOMY:

Staffing devoted to maintaining TAXONOMY	0.3 FTE
Cost for .3 FTE @ \$59,184/FTE	\$ 17,755
Costs for FTE benefits (\$17,755 x 25%)	\$ 4.439
Related Travel	\$ 4,000
Estimated 1-year costs	\$ 26,194
Estimated 5-year costs (\$26,194 x 5)	\$130,970

MANAGEMENT RESPONSE TO DRAFT AUDIT REPORT
The Business Systems Development Organization Can Improve the
Management of Information Services Requests -- Audit #200420010

IMPLEMENTATION DATE:		
COMPLETED:	PROPOSED: October 1, 2005	

RESPONSIBLE OFFICIAL(S)

Director, Business Systems Development OS:CIO:I:B

CORRECTIVE ACTION MONITORING PLAN

- 1. Determine if there are alternative sources of the information on each module.
- If needed, identify alternative means of maintaining necessary data not available elsewhere.
- 3. Determine cost/benefit of continuing to maintain Taxonomy versus alternatives.
- 4. If recommendation is to keep Taxonomy, work with MITS' Financial Management Services organization to plan for funding of maintenance.